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ABSTRACT

Thirty-five teachers who graduated from the new elementary program at the university of Florida and 30 control teachers from the regular program were observed in a followup study to assist in determining the efficiency of a systematic, theory-based approach to curriculum innovation and, specifically, to determine the effectiveness of the experimental program instituted at the University of Florida. Teams of trained observers observed each teacher in the classroom during both behavioral and inferential techniques of observation. Findings indicated that the experimental group engaged significantly more in experimental classroom practices. Teacher-centered, right-answer focus was less evident. The perceptual organization of the experimental teachers was positive to a significantly higher degree; more specifically, in their perceptions of others as able and of goals as larger, in their tendency to see themselves as more adequate and to be more self-revealing. It was concluded that the efficiency of systematic approaches to curriculum innovation was indicated and that results merit further exploration and development of the experimental program at the University of Florida. The instrumentation is appended. (Author/JA)

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FINAL REPORT

U. S. Department of Health, Education, and Welfare

Project No. 2-D-028, Grant No. OEG 4-72-0016

A Follow-Up Study of On-The-Job Behavior of Elementary Teachers Trained in an Innovative and a Traditional Program of Teacher Preparation

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I. Introduction

A badly needed area of investigation in these times concerns innovations in teacher education. If we do not change teachers, it is highly unlikely that we can bring about significant changes in our schools. Curriculum changes in teachers colleges over the years have generally been haphazard and patch work in character. Truly effective innovation needs to be approached much more carefully and systematically, proceeding from research to examination of theory to implementation in practice to evaluation. The College of Education at the University of Florida has attempted just such a systematic approach to curriculum innovation. This study was designed to shed some light on the effectiveness and efficiency of such effort.

Problem

In the past most attempts at improving teacher education have been limited to the rearrangement of courses, additions to content and changes in certification requirements.

The New Elementary Program at the University of Florida is a radical departure from traditional programs. It is based upon extensive research on the perceptual organization of teachers and other members of helping professions conducted at the University of Florida (Combs, 1969, Brown, 1970, Dedrick, 1972, Dellow, 1971, Gooding, 1964, Parker, 1964, Usher, 1966, Vonk, 1970), and at the University of Northern Colorado (Choy, 1969, Doyle, 1969, Morgenstern, 1969, Picht, 1969, Usher and Hanke, 1971). These studies show significant differences between the perceptual organization of effective and ineffective teachers. Out of these researches, and out of new understandings of the nature of the learner and the learning process, drawn from recent psychological thought, the New Elementary Program was constructed and set in operation. The program is thus unique in that it is (a) based upon a program of basic research, (b) formulated into a theoretical position for teacher education, (c) placed in operation side by side with an existing program, and (d) is now being subjected to follow-up research to determine its effectiveness. The program is described more fully by Robert Blume in an article published in the *Phi Delta Kappan*, March, 1971. For a reprint, see Appendix A.

The program attempts to produce teachers who have learned to use themselves effectively as instruments to carry out their educational functions. Six major principles underlie its construction:

1. "The Self As Instrument Concept." The production of effective professional workers is a problem in becoming. An effective teacher is one who has learned how to use himself and his knowledge of children and subject matter to carry out his own and society's purposes in the educative endeavor.

This kind of personal discovery calls for a program providing maximum opportunities for self direction and personal discovery of effective modes of teaching.

2. Maximum Flexibility. Students come to the College of Education with varying backgrounds, experience and widely divergent needs. Teacher education programs must, therefore, contain sufficient fluidity to adjust to individual needs, permit wide variations in instructional programs and in rates of progress.

3. Close Relationship of Didactic Instruction and Practical Experience. An effective program calls for closest possible relationships between the student's practical experience and didactic instruction. Participation in actual teaching should begin as early as possible and provide for continuously increasing time and responsibility in the classroom. Internship experience should be spread throughout the training period rather than concentrated at the end.

4. Responsibility and Individualization. An effective program calls for individualized instruction and maximum acceptance of responsibility by the student for his own learning.

5. Relation of Learning to Need. Learning is likely to be effective only when it is personally meaningful and relevant to the needs of the learner. Need to know should precede exposure to information.

6. Reasonable Cost of Operation. The new program should operate within existing allocations of staff and expense.

The New Elementary Program is now in its fourth year of operation as an experimental program. It was started January, 1969, with 90 randomly selected beginning students in Elementary Education. An equivalent number of students enrolled in the regular program were randomly selected as a comparison group.

During the past two years a wealth of pre- and post-measures have been collected fro both groups assessing the following dimensions: (1) attitudes and values, (2) self-perceptions, (3) social behavior, (4) personality characteristics, and (5) student teaching performance. The New Elementary Program has been operated without government or private funding except for a $1,000 grant by the American Federation of Teachers which made it possible to conduct a pilot comparison study between a sample of experimental and comparison students. The findings constitute the first and only "hard" data available on the New Elementary Program.

A comprehensive research making full use of all the data so far accumulated would require massive support and

the program will continue to search for such funds, meanwhile holding the collected data on file. The most pressing and immediate research need was follow-up of the experimental students' professional performance on the job since this could not be postponed.

This study was therefore designed to accomplish this phase of the research. An initial follow-up study by mail had already been carried out without funding assistance. Principals' ratings and self-report data were collected on a sample of 35 graduates of the New Elementary Program and a comparison group. Initial examination of these data shows some clear areas in favor of the experimental group. However, such measures cannot replace data yielded by the kind of systematic classroom observation planned in this study.

Related Literature

To evaluate the effectiveness of teacher education programs one needs to answer the question - what makes an effective teacher? The question has been asked for many decades. Investigators have searched and researched for answers. Studies on specific methods or traits failed to produce such answers (Wingo, 1960, Biddle and Ellena, 1964). In a comprehensive review of research done between 1950-1960 on teacher personality and characteristics, listing some 800 references, Getzels and Jackson conclude: "Despite the critical importance and half a century of prodigious research efforts, very little is known for certain about the relation between teacher personality and teaching effectiveness" (Getzels and Jackson, 1963). Perhaps the main reason for this state of confusion is that the question of teacher effectiveness has too often been studied without reference to educational or psychological theory. In 1952 the Committee on the Criteria of Teacher Effectiveness of the American Educational Research Association charged that research in this field is carried out in a theoretical vacuum which leads to inadequate methodology and meaningless conclusions (AERA, 1952).

During the past two decades two new approaches to the study of teacher effectiveness have come into being. One of them focuses upon systematic behavior observation in the classroom, the other upon perceptual organization inferred from teacher behavior.

Systematic Observation

Systematic observation in the classroom was pioneered by Medley and Mitzel (1958), Withall (1949), Flanders (1960), and others. Observational systems are designed to identify, classify, quantify, and analyze behavioral events in the classroom. A large number of such observation systems have been developed and used (Simon and Boyer, 1967, 1970, Ober et al, 1971), but not all instruments are grounded in clearly

stated theory. The usefulness of an observation system as an instrument for measuring teacher effectiveness is immensely increased when its theoretical framework is consistent with the educational objectives to be measured. Among those having such theoretical anchorage are the Teacher Practices Observation Record (TPOR) and Flanders' Category System of Interaction Analysis.

The TPOR, developed by Bob Burton Brown, is based on Dewey's Experimentalism (Brown, 1968). It has been used in numerous studies, most recently by Robert Soar in a national study which compared seven Follow-Through programs in a total of 70 classrooms (Soar, 1970, 1971). The factored dimensions of the TPOR yielded useful information relative to objectives of these programs and were capable of discriminating between some of them.

Ned Flanders' Category System (1965) emphasizes the social climate created by the verbal interactions in the classroom, and is based on the mental health, group dynamics point of view represented by H. H. Anderson and H. M. Brewer (1945, 1946), J. Withall (1949), and R. Lippitt and R. K. White (1949).

The ultimate criterion of teacher effectiveness is, of course, the growth of pupils. However, relationships between instructional variables and pupil growth measures are very difficult to establish (Harris, 1963, Glaser, 1963, Ebel, 1966, Gump, 1967, Rosenshine, 1970, Sjogren, 1970). Nevertheless, some observational systems are capable of showing some direct relationships with pupil measures. Flanders' system has shown positive correlations for pupil academic achievement as well as pupil attitudes towards school (Flanders, 1965). Soar's study shows at least some significant correlations between TPOR factors and pupil measures of academic growth (Soar, 1971).

The theoretical assumptions underlying the TPOR and Flanders' system are consistent with the purposes of the experimental program as well as contemporary educational goals. The TPOR is based on Dewey's philosophy and recommendations. These have recently been re-introduced into educational thinking and practice, although with different nomenclature, e.g., British Open Infant School, Open School, Open Classroom, Inquiry School, and Individualized-Personalized Instruction. Certainly, educators today agree that we need to foster creativity, problem-solving, independent thinking, and self-initiated learning and discovery. It therefore seemed appropriate for use in this study. Flanders' system is based on the social climate, human relations aspects in our schools. The quality of interpersonal relationships has become a major problem in education as elsewhere in our society and is an essential concern of the experimental program. Using Flanders' system appeared useful in its focus upon the nature of the verbal interactions in the classroom.

Perceptual Approach

The perceptual approach to determining effectiveness uses observers trained in the self-as-instrument technique of observation who infer teacher perceptions from actual classroom behavior. These procedures have been outlined, tested, and validated in a series of researches by Usher, 1966, Combs, 1969, Brown, 1970, Dedrick, 1972, Dellow, 1971, and others. Since the experimental program is originally based upon perceptual thinking, the assessment of perceptual organization by the observation/inference technique is appropriate.

II. Objectives

Purpose

The purpose of the study was to shed some light on the effectiveness of the New Elementary Program as determined from teacher behavior in the classroom. The following measures were chosen to carry out the teacher evaluations:

(1) Teacher Practices Observation Record (TPOR)

(2) Reciprocal Category System (RCS), a modification of the Flanders System

(3) Perceptual Dimensions Scale (PDS)

Description of Instruments

Teacher Practices Observation Record (TPOR)

The TPOR was developed by Brown to measure a teacher's classroom practices in relationship with John Dewey's experimentalism (Brown, 1968). It contains 62 sign items of teacher practices (for detailed description see Appendix B). With respect to Dewey's experimentalism, the 31 even-numbered items are positive, and the odd-numbered items are negative. Therefore, total scores on even and odd-numbered items can be used to test for differences between the experimental and comparison group. Soar (1970), carried out a factor analysis of the TPOR using principal component extraction and varimax rotation. The results of his study indicate that several factors discriminated between Follow Through programs that are quite diverse in purposes and approaches, e.g. the Engelmann-Becker, the Tuscon, Bank Street, Nimnicht, and Florida model. Soar's factor I pools items which indicate a high degree of pupil-centeredness with self-initiated and independent activities. Factor II combines items which demonstrate experimental teaching. Factor IV pools items which indicate non-experimental teaching. Factor VI is composed of items which show a high degree of teacher-

centeredness with emphasis on facts and correct answers. Therefore, factors I, II, IV, and VI can be used to test for differences between the experimental and the comparison group. Earlier research done with the TPOR, including validity and reliability information and directions for use, scoring, and tabulations are published (Brown, 1968, chapter 6).

Reciprocal Category System (RCS)

The RCS is a modification of Flanders' original ten-Category System of Interaction Analysis (Ober et al, 1971). The main difference between the RCS and the Flanders system is that each category in the RCS can be used for both pupil talk and teacher talk. This modification yields twice as many data. By pooling categories, the RCS data can be returned to the Flanders system. Consequently, it is possible to relate RCS data to information accumulated in studies by Flanders. The RCS contains nine verbal categories each of which can be assigned to either teacher or pupil talk, and a single category reserved for silence or confusion (for a detailed description see Appendix B). The RCS divides naturally into four subdimensions reflecting dualistic aspects of verbal behavior:

Category		
1, 11	Warm---------Cool	9, 19
2, 12	Accept----Correct	8, 18
3, 13	Amplify----Direct	7, 17
4, 14	Elicit---Initiate	6, 16

The social climate orientation is clearly reflected in these dimensions. It is then possible to examine differences between the experimental and comparison group in the comparative strength (frequency) of verbal behavior occurring in the dichotomized categories. It is also possible to combine categories into a broader dimension to obtain an index. Soar's factor analysis (1970) showed that several factors discriminated between Follow Through programs. Among them is Factor I, which loads heavily on drill and amount of teacher talk; Factor II which indicates a wide variety of pupil initiated and directed interactions both with teacher as well as peers; and Factor VIII which indicates supportive pupil-pupil interaction. It is possible that these factors are also capable of discriminating between groups in the present study.

Perceptual Dimensions Scale (PDS)

Perceptual rating scales have been used in numerous studies. They are designed to infer teachers' perceptions

from actual classroom behavior by using the self-as-instrument technique of observation (Combs, 1965, Combs, Avila and Purkey, 1971, Combs, 1972). Validity and reliability information is available in numerous reports (Combs, 1969, Usher and Hanke, 1971, and others). Many perceptual dimensions may be explored by use of observers trained in the self-as-instrument technique. The PDS designed for this study is an adaptation of perceptual rating scales used in previous researches. It consists of six dimensions each representing a set of perceptions that are rated on a seven-point scale with number one assigned to the positive and seven to the negative end of the continuum for each dimension. The PDS comprises the following dimensions or continua:

1. Internal-External Frame of Reference
2. Perceptions of Others as Able or Unable
3. Perception of Self as Adequate or Inadequate
4. Perception of Self as Revealing or Concealing
5. Perceptions of Purpose as Freeing or Controlling
6. Perceptions of Goals as Larger or Smaller

For more detailed definitions of these dimensions see Appendix B. Since numerous studies of teacher effectiveness indicated the usefulness of perceptual factors, the PDS was seen as appropriate for this study.

Hypotheses

On the basis of the considerations above the following operational hypotheses were formulated:

1. The experimental group will score significantly higher than the comparison group on the even-numbered sign items of the TPOR.
2. The experimental group will score significantly higher than the comparison group on Soar's factors I and II, and significantly lower on Soar's factors IV and VI, on the TPOR.
3. The experimental group will show significantly higher ratios than the comparison group in categories 1, 11; 2, 12; 3, 13; and 4, 14 on the RCS.
4. The experimental group will show a significantly higher ratio than the comparison group in the category combination 1, 11; 2, 12; and 3, 13 on the RCS.

5. The experimental group will show significantly higher loadings on Soar's factors II and VIII, and significantly lower loading on factor I on the RCS.

6. The experimental group will score significantly higher than the comparison group on all six perceptual dimensions on the PDS.

III. Procedures

Sample

Sixty-five teachers comprised the sample. Thirty-five teachers who had participated in the New Elementary Program comprised the experimental group. These were all the NEP teachers who had graduated in 1970-71 and: (a) could be located, (b) were teaching in the State of Florida and the Atlanta, Georgia area, and (c) whose principals gave permission to carry out the observations. Thirty teachers who had participated in the regular program, and graduated in the same quarters as the NEP group, comprised the control group. These teachers were randomly selected from those who: (a) could be located, (b) were teaching within a 150-mile radius of Gainesville, and (c) whose principals gave permission to carry out the observations. For copies of letters to principals and teachers, see Appendix C.

Scoring of Instruments

Each of the instruments used requires a distinctly different approach and recording procedure. On the RCS the verbal interactions between teacher and classroom group are recorded at 3-second intervals, for the period of time designated. The TPOR alternates 5-minute periods of observation with 5-minute periods of recording. While the RCS requires recording the frequency of certain behaviors, the TPOR requires checking the presence of certain behaviors. The PDS differs from both instruments in that specific behaviors are not recorded on the instrument. Observations are made holistically, then perceptual scores inferred from these global impressions are recorded on that instrument.

For more detailed instructions in the use of the RCS and TPOR see Appendix B.

Observer Training

Seven observers were recruited to score the above instruments. They worked in three teams of two observers

each with the seventh observer serving as a floater who would fill in when a regular observer had to miss observations for whatever reason.

Five of the seven observers had had previous training and experience in the use of at least one of the instruments while working for Drs. Ira Gordon, Robert Soar or Len Kaplan of the Institute for the Development of Human Resources at the University of Florida. Observers with previous experience participated in a refresher training session for that particular instrument. Those observers with little or no previous experience each completed a total of approximately fifty-five hours of training spread over a period of two weeks in April, 1972, one week prior to the date when the actual classroom observations were scheduled to begin.

Data Collection

The data were collected over a period of one month, two weeks prior to the end of the 1972 school year. Teams of two observers each spent at least three hours of observing-recording time in the classroom with each of the teachers assigned to them. Excluded from observing - recording time were class activities such as lunch, rest periods, playtime, or instructional periods conducted by other professional personnel such as music and physical education. Since these activities are typically interspersed in the regular daily program, in most cases, observers spent a full day in each classroom in order to complete the observations and the record-keeping required for the project. The general schedule for observation and recording was as follows:

TIME SEGMENT			
I.	A: 30 Mins.	B: 30 Mins.	_____
II.	_____	A: 10 Mins.	A: 20 Mins. B: 30 Mins.
III.	A: 10 Mins. B: 10 Mins.	A: 10 Mins. B: 10 Mins.	_____ _____

(*A and B are observers)

The schedule above was followed whenever possible, however observers had to adjust it according to the particular circumstances existing in the classrooms. For instance, observers were asked to complete the interaction analysis records (RCS) at the first opportunity, that is, when the teacher engaged in verbal interaction with the whole class or with a group of pupils.

Each observer scored each of the three instruments for each assigned teacher. Simultaneous recording by both observers using the same instrument (see schedule above) made it possible to obtain inter-observer reliability checks for each teacher.

In addition to completing the observations and record-keeping on the instruments above, each observer collected descriptive information about the particular classroom on separate comment sheets.

Periodically observers were shifted to work in different teams. Consequently, in no instance did a team of observers stay together for all their observations. Teams were randomly assigned to observe teachers in the experimental and control groups.

All necessary precautions were taken to assure "blind" observations, that is, observers did not know whether a given teacher was "experimental" or "control" or that in fact such a distinction was made in the study.

Procedures for Data Analysis

The IBM 360 system, Model 65 at the University of Florida, was used to treat the data.

Preliminary examination of results indicated a non-normal distribution of the observational data obtained, showing a skewedness to the left that followed a type of exponential curve. An area transformation* was carried out to normalize the data. This procedure is best suited to the type of data collected, yielding most valid overall representation of its characteristics. A linear transformation yielded T-scores with a mean of 50 and a standard deviation of 10. All variances met the assumption of homogeneity using Hartley's F maximum test.

The following procedures were used for testing the hypotheses:

TPOR (Teacher Practices Inventory)

Hypothesis 1 was tested by summing all scores for the even-numbered sign items on the TPOR. An F-test was used to test for significance between groups.

To test Hypothesis 2, incomplete factor scores were derived using the squared factor loadings as weighting coefficients. The factor loadings were then multiplied by the T - scores of each item in the factor and their combinations summed to form the factor score for each individual in the sample. Two-way analysis of variance with repeated measures was employed to test for differences between groups.

*An area transformation ranks data from largest to smallest, and then assigns the correct percentages to the normal curve.

In addition, analysis comparisons were made that considered each factor individually.

RCS (Reciprocal Category System)

Hypotheses 3 and 4 were tested using a stepwise discriminant function analysis. Since ratio data such as obtained on the RCS tend to obscure results that are not extreme for either group, the data were also examined by considering individual categories separately.

To test Hypothesis 5, incomplete factor scores were derived again, as with the TPOR. Differences between groups were measured by a two-way analysis of variance with repeated measures.

PDS (Perceptual Dimensions Scale)

Both multivariate and univariate methods were used to test Hypothesis 6. The frequency distribution with special reference to the extremes was examined to obtain additional information descriptive of results.

Inter-Observer Reliability

Inter-observer reliability checks were possible on the RCS and the PDS. For the RCS, all observers and twenty-two randomly selected teachers or approximately one-third of the total sample were used to obtain reliability measures. Scott's reliability coefficient used by Flanders with the original Ten-Category system (Flanders, 1965) was used according to the following formula:

$$\pi = \frac{Po - Pe}{1 - Pe}$$

where Po is the proportion of agreement, and Pe is the proportion of agreement expected by chance which is found by squaring the proportion of tallies in each category and summing these over all categories:

$$Pe = \sum_{i=1}^{k} P_i^2$$

(This is a rather stringent measure of reliability when used for a system that consists of twice the number of categories as the one for which it was designed.)

For the PDS, inter-observer reliability measures were obtained for all observers and teachers using the

following procedure: Reliability (correlation) coefficients were calculated for each of the six dimensions separately using the formula:

$$r = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{(N\Sigma X^2) - (\Sigma x)^2 \quad (N\Sigma Y^2) - (\Sigma Y)^2}}$$

The r's were then transformed to Fisher's z's, summed and an average z determined which was then transformed back to a total r or reliability coefficient.

IV Results

Observer Reliability. Following the procedures described in the previous section, inter-observer reliability coefficients yielded averages of .749 on the RCS and .9 on the PDS. The TPOR does not lend itself to inter-scorer reliability checks, (personal communication with the author); however, other pertinent reliability information, based on wide use of the instrument, is published, Brown, 1968.

Teacher Practices Observation Record (TPOR)

Hypothesis One predicted that the experimental group would score significantly higher than the control group on the even-numbered sign items of the TPOR. Results in Table 1 support this hypothesis, indicating the difference is statistically significant at the .01 level or better. It would thus appear that John Dewey's experimentalism is more apparent in the teaching practices of the experimental group than in the teaching practices of the control group.

Table 1

Means of Even-Numbered Items on the TPOR

	$\bar{X}$	s^2	df	t
Exper. Group N = 35	1,631.52	1.492.95	63	3.51
Contr. Group N = 30	1,545.68	5,092.78		

*p < .01

Hypothesis Two stated that the experimental group would score significantly higher than the comparison group on Soar's factors I and II, and significantly lower on Factors IV and VI. Using a two-way analysis of variance with repeated measures, the sources of variation that were partitioned are shown in Table 2. As can be noted, when the factors were considered simultaneously, there were no significant differences between experimental and control groups (F-Ratio = .92), and the interaction of groups and factors was not significant. (F = 1.27). Hypothesis Two must therefore be rejected.

Table 2
Analysis of Variance Using Four Factors on the TPOR

Source of Variation	SS	DF	MS	F
Between Subjects (A)		64		
Experimental, Control, Grps.	488.65	1	488.65	0.92
Subject W. Groups	33290.00	63	528.41	
Within Subjects (B)		195		
Factors I, II, IV, VI	952971.94	3	317657.31	592.00
AB	2049.52	3	683.17	1.27
B X Subj. W. Groups	101414.00	189	536.58	

When the four factors were considered independently, a significant difference between the groups was found for Factor VI as can be noted in Table 3. Factor VI pools items which indicate activities that are teacher-centered with emphasis upon facts and correct answers. It was predicted that such activities would occur to a significantly lesser degree in the experimental group than in the comparison group. Results shown in Table 3 indicate that the difference was in favor of the experimental group as predicted.

Table 3
Mean Distribution of Four Factors on the TPOR

Factors	I		II		IV		VI	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Exper. Group	104.28	27.44	265.47	31.63	147.77	14.42	201.77	19.58
Contr. Group	99.80	28.28	260.61	24.09	147.72	9.53	212.43	22.32
F-Ratio	.4173		.4915		.0002		4.2127*	

*p = .01
Factor I = Pupil Freedom vs. Teacher-Structured Activity
Factor II = Experimental Teaching
Factor IV = Non-Experimental Teaching
Factor VI = Teacher-Centered - Right-Answer Focus

Reciprocal Category System (RCS)

Hypotheses three and four stated that the experimental group will show significantly higher ratios than the control group in categories 1, 11; 2, 12; 3, 13; and 4, 14; and in the 1-2-3 category combinations. The F-ratios for these categories and category combinations ranged from F = .25 to F = .0055, indicating no differences between the groups and no support for either hypothesis, when all category pairs and combinations of pairs were considered simultaneously and in interaction.

When the categories were considered independently, the differences found did not reach statistical significance, but are in the predicted direction (See Table 4).

Table 4

Mean Distribution of Eight RCS Categories

RCS Categories	Exp. Group (N=35)		Control Group (N=30)		
	X	SD	X	SD	F-Ratio
1-Teacher Warms	50.49	11.14	49.42	8.83	.182
11-Student Warms	50.03	9.90	49.96	10.45	.005
2-Teacher Accepts	48.71	10.10	52.09	9.80	1.442
12-Student Accepts	50.33	10.66	49.62	9.57	.078
3-Teacher Amplifies	51.32	9.00	50.99	8.43	.076
13-Student Amplifies	51.20	10.01	51.52	7.80	.022
4-Teacher Elicits	50.24	7.81	52.70	10.01	1.231
14-Student Initiates	51.11	10.02	48.70	10.16	1.142

Hypothesis Five predicted that the experimental group would show significantly higher loadings than the control group on Soar's Factors II and VIII, and significantly lower loadings on Factor I. Two-way analysis of variance with repeated measures partitioned sources of variation that can be found in Table 5.

As can be noted, the F-ratio of 1.17 indicates there was no significant difference between groups, consequently no support for Hypothesis Five.

Table 5
Analysis of Variance Using Three Factors on the RCS

Sources of Variation	SS	DF	MS	F
Between Subjects (A)				
Exp/Control Grp.	544.25	1	544.25	1.17
Subjects Within Grps.	29270.00	63	464.60	
Within Subjects (B)				
Factors II, VIII, I	56538.90	2	28269.45	55.21
AB	1282.30	2	646.16	1.26
B X Subjects Within Grps.	64472.00	126	512.00	

Perceptual Dimensions Scale (PDS)

Hypothesis Six predicted that the experimental group would score significantly higher than the control group on all six dimensions of the PDS. When the measures of the six dimensions were considered in interaction, such differences were not found: Discriminant function analysis using the Wilks Lambda Statistic yielded an F-ratio of 1.292. However, combining the measures on the six dimensions into a total score revealed a difference between the groups that was statistically significant at the .01 level (see Table 6). It would thus appear that all of the perceptual dimensions taken together indicate a significant difference in favor of the experimental group.

Examining the six dimensions individually by the univariate method produced results shown in Table Six. It is shown that differences in favor of the experimental group are statistically significant at the .01 level or better for two additional dimensions, and are in the predicted direction for the ramaining two dimensions. These findings support Hypothesis Six. It is apparent from Table 6 that the experimental teachers more often perceive others as able and possess larger rather than smaller goals. The two dimensions approaching significance would seem to suggest that

the experimental teachers may also see themselves as more adequate and may be more revealing of themselves than the teachers in the control group.

Table 6
Mean Distribution and Total Scores of Six Dimensions on the PDS

Perceptual Dimensions	Experimental Group		Control Group		df = 63
	$\bar{X}$	SD	$\bar{X}$	SD	F-Ratio
1-Internal External	3.22	1.33	3.66	1.60	1.448
2-Others Able-Unable	3.22	1.30	4.06	1.53	5.589*
3-Self Adequate-Inadequate	2.88	1.18	3.43	1.30	3.149
4-Revealing-Concealing	3.42	1.44	4.13	1.50	3.716
5-Freeing-Controlling	3.71	1.52	4.26	1.59	2.030
6-Goals Larger-Smaller	3.17	1.40	3.90	1.42	4.209*
7-Total Score	19.66	7.42	23.47	7.71	4.101

$p \leq .01$

In rating scales of the type used here, differences between groups are sometimes obscured by measures in terms of means alone. Therefore, an additional examination of the data was made with special reference to the extremes which more clearly separate the groups. Results for the extreme negative scores are shown in Figure 1. Results for the extreme positive scores are shown in Figure 2. It can be noted that a consistently higher proportion of the experimental group is rated on the extreme positive end of the scale (1 or 2) for each of the six dimensions than the control group. Even more pronounced is the difference between the groups at the extreme negative end of the scale (6 or 7). A substantially smaller proportion of the experimental group received lowest negative ratings on all dimensions than the control group.

Conclusions and Discussion

The New Elementary Program at the University of Florida is unique in two respects: (1) For the series of innovations in teacher education which it attempted and (2) as a demonstration of a systematic approach to curriculum change beginning with basic research on the helping professions, followed by the development of a theory of teacher education which was then placed in operation side by side with an existing program and, finally, subjected to follow-up assessment. The purpose of this study was to shed some light on the effectiveness of those efforts. While the results in this study, of course, cannot be considered definitive, they provide encouragement and support, both for the philosophy and practices implemented in the program and for the systematic approach to curriculum innovation which the development of this program attempted.

The follow-up studies of the first 35 teachers in this program, represented in this study, examined from systematic observations of teacher behaviors in the classroom, indicate that the New Elementary Program teachers' practices were more in line with Dewey's experimentalism. NEP teachers were also less teacher-oriented, right-answer oriented than the teachers in the more traditional group. Most of the comparisons from a strictly behavioral point of view showed no significant differences between new program and old program students.

Examined from a perceptual orientation, teachers from the new program were much more clearly differentiated with respect to their perceptions about themselves, about others and with respect to the purposes they were attempting to carry out. More specifically, teachers in the NEP group generally perceived children as able rather than unable, and their goals were generally larger rather than smaller. They also tended to see themselves as more adequate and were more likely to be self-revealing rather than self-concealing.

The original research on which the theory and practice of the New Elementary Program was predicated found that clear differences could be discovered between effective and ineffective helpers in several professions including teaching. The results of this study tend to corroborate that finding and lend further support to the value of perceptual approaches in the assessment of teacher performance and to the use of such approaches in the construction of teacher education programs.

Most attempts at evaluation of teacher success have generally been oriented toward measures of specific teacher behavior. The greater success of perceptual approaches in discovering differences between the two groups of young teachers in this study would seem to suggest that such approaches may represent fruitful additional vehicles for the assessment of teacher effectiveness. The results obtained in this study would certainly seem to suggest the combinations of these two frames of reference for assessment of effective teaching should be subjected to much further study.

FIGURE 1

% of all scores falling in extremely positive range (1 or 2)

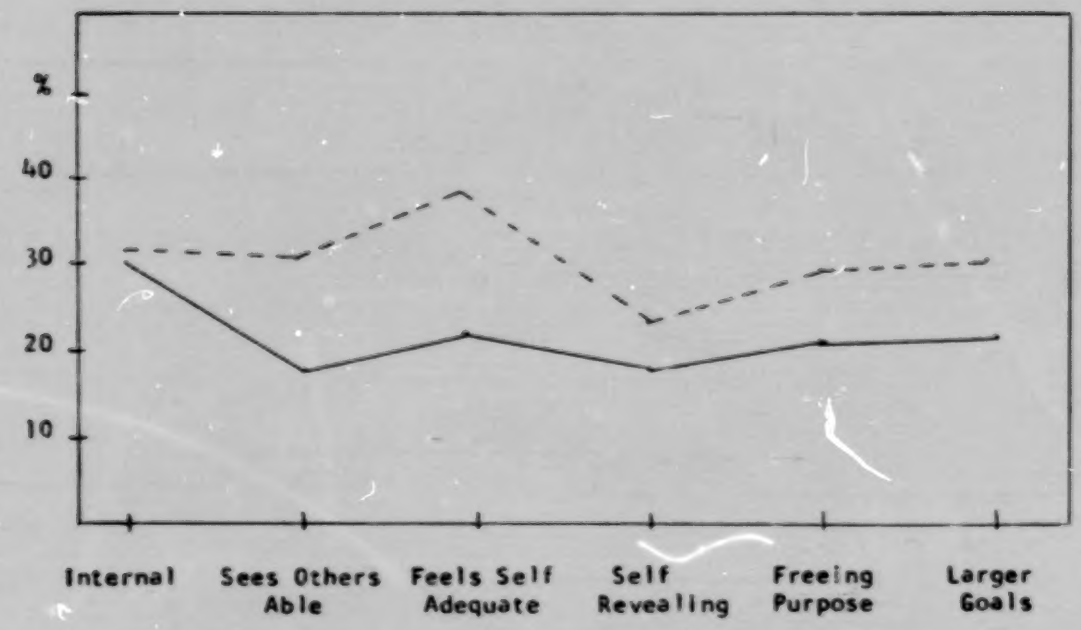
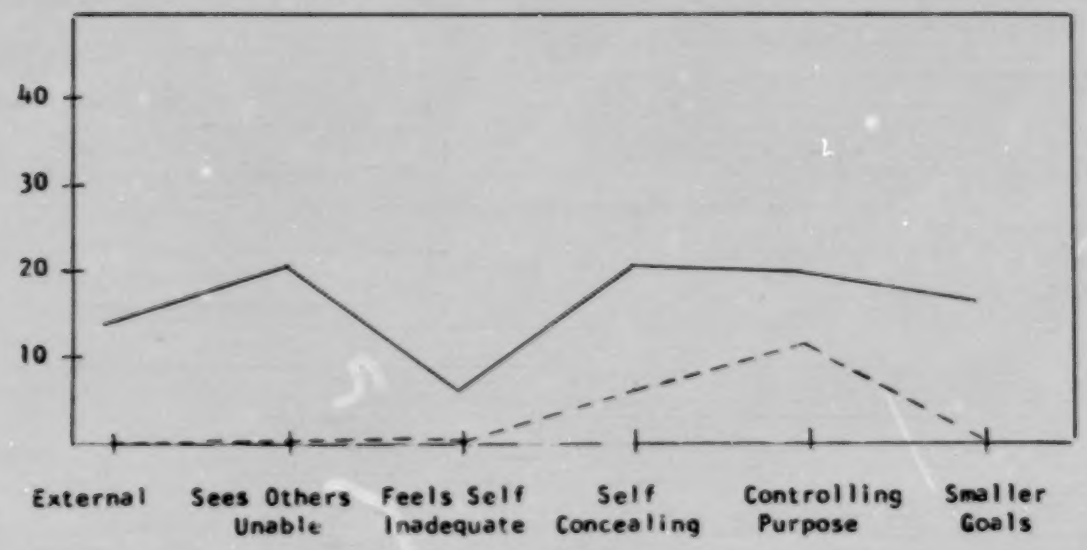


FIGURE 2

% of all scores falling in extremely negative range (6 or 7)



References

Anderson, H. H. and Brewer, H. M. "Studies of Teacher Classroom Personalities, I: Dominative and Socially Integrative Behavior of Kindergarten Teachers," Applied Psychology Monographs, No. 6, 1945.

Anderson, H. H., and Brewer, H. M. "Studies of Teacher Classroom Personalities, II: Effects of Teachers' Dominative and Integrative Contacts on Chidlren's Classroom Behavior," Applied Psychology Monographs, No. 8, 1946.

Biddle, B. J., and Ellena, W. J., Contemporary Research on Teaching Effectiveness, New York, Holt, Rinehart and Winston, 1964.

Biddle, B. J., "Methods and Concepts in Classroom Research," Review of Educational Research, 37, pp. 337-357, 1967.

Blume, Robert, "Humanizing Teacher Education," Phi Delta Kappan, March 1971, pp. 411-415.

Brown, Bob Burton, The Experimental Mind in Education, Harper and Row, 1968.

Brown, Robert G., "A Study of Perceptual Organization of Elementary and Secondary 'Outstanding Young Educators'" unpublished Doctoral Dissertation, University of Florida, Gainesville, 1970.

Choy, Chunghoon, "The Relationship of College Teacher Effectiveness to Conceptual Systems Orientation and Perceptual Orientation," unpublished Doctoral Dissertation, University of Northern Colorado, 1969.

Combs, Arthur W., and Snygg, D., Individual Behavior, New York, Harper, 1959.

Combs, Arthur W., The Professional Education of Teachers: A Perceptual View of Teacher Preparation, Allyn and Bacon, 1965.

Combs, Arthur W., The Florida Studies in the Helping Professions, Social Science Monograph No. 37, University of Florida Press, Gainesville, 1969.

Combs, Arthur W., Donald L. Avila, and William W. Purkey, Helping Relationships - Basic Concepts for the Helping Professions, Allyn and Bacon, 1961.

Combs, Arthur W., Educational Accountability - Beyond Behavioral Objectives, Association for Supervision and Curriculum Development, Washington, D. C., 1972.

Cronbach, L. J., and Furby, L., "How Should We Measure Change - Or Should We?" Psychological Bulletin, 74, pp. 68-80, 1970.

Dedrick, Charles, "The Relationship Between Perceptual Characteristics and Effective Teaching at the Junior College Level," unpublished Doctoral Dissertation, University of Florida, 1972.

Dellow, Donald A., "A Study of the Perceptual Organization of Teachers and Conditions of Empathy, Congruence, and Positive Regard," unpublished Doctoral Dissertation, University of Florida, March, 1971.

Doyle, Eunice J., "The Relationship Between College Teacher Effectiveness and Inferred Characteristics of the Adequate Personality," unpublished Doctoral Dissertation, University of Northern Colorado, 1969.

Ebel, Robert L, "Some Measurement Problems in a National Assessment of Educational Progress," Journal of Educational Measurement, 3, pp. 11-17, 1966.

Flanders, Ned A., Teacher Influence, Pupil Attitudes, and Achievement: Studies in Interaction Analysis, Washington, D. C., USOE Project No. 397, 1960.

Flanders, Ned A., Teacher Influence, Pupil Attitudes, and Achievement, Washington, D. C., Cooperative Research Program OE - 25040, 1965.

Flanders, Ned A., Analyzing Classroom Interactions, New York, Addison-Wesley, 1970.

Getzels, J. W. and Jackson, P. W., "The Teacher's Personality and Characteristics," ch. 11 in Gage, N. L. (ed.), Handbook of Research on Teaching, American Educational Research Association, Rand McNally, 1963.

Glaser, Robert, "Instructional Technology and the Measurement of Learning Outcomes; Some Questions," American Psychologist, 18, pp. 519-521, 1963.

Gooding, Charles Thomas, "An Observational Analysis of the Perceptual Organization of Effective Teachers," unpublished Doctoral Dissertation, University of Florida, December, 1964.

Gump, Paul V., The Classroom Behavior Setting: Its Nature and Relation to Student Behavior, Final Report U. S. Office of Education Bureau of Research, Project No. 2453, University of Kansas, 1967.

Harris, Chester W. (Ed.), Problems in Measuring Change, University of Wisconsin Press, Madison, 1963.

Lippitt, R., and White, R. K., "The Social Climate of Children's Groups," in Barker, R. G., Kounin, J. S., and Wright, H. F. (Eds.), Child Behavior and Development, New York: McGraw-Hill, 1943.

Medley, D. M. and Mitzel, H. E., "A Technique for Measuring Classroom Behavior," Journal of Educational Psychology, 49, 1958, pp. 86-92.

Morgenstern, Robert E., "The Relationship Between two Modes of Interpersonal Conditons and College Teacher Effectiveness," unpublished Doctoral Dissertation, University of Northern Colorado, 1969.

Mouly, George J., "Research Methods," Encyclopedia of Educational Research, Fourth Edition (Ebel, Ed.), pp. 1144-1152, Macmillan, 1969.

Ober, Richard L., Ernest Bentley, and Edith Miller, Systematic Observation In the Classroom, Prentice-Hall, 1971.

Picht, Lois P., "Self Concept in Relation to Effectiveness in Students Teaching," unpublished Doctoral Dissertation, University of Northern Colorado, 1969.

Rosenshine, Barak, "Evaluation of Classroom Instruction," Review of Educational Research, Vol. 40, No. 2, April 1970, pp. 279-300.

Simon, Anita, and Boyer, E. Gil, Mirrors for Behavior, An Anthology of Classroom Observation Instruments, Vol. I-XIV, Research for Better Schools, Inc., Philadelphia, 1967-1970.

Sjogren, Douglas D., "Measurement Techniques in Evaluation," Review of Educational Research, Vol. 40, No. 2,

Soar, Robert S., Follow-Through Model Implementation, Interim Report, Institute for Development of Human Resources, College of Education, University of Florida, 1970.

Soar, Robert S., Follow Through Classroom Process Measurement, Institute for Development of Human Resources, College of Education, University of Florida Gainesville, 1971.

Soar, Robert S., "Teacher-Pupil Interaction," chapter 5 in A New Look at Progressive Education, ASCD 1972 Yearbook, Washington, D. C., pp. 166-204.

Usher, R. H., "The Relationship of Perceptions of Self, Others and The Helping Task to Certain Measures of College Faculty Effectiveness," Ed. D. Dissertation, University of Florida, Gainesville, 1966.

Vonk, Herman G., The Relationship of Teacher Effectiveness to Perception of Self and Teaching Purposes, unpublished Doctoral Dissertation, University of Florida, Gainesville, 1970.

Wingo, Max, "Methods of Teaching," Harris, C. W. (Ed.), Encyclopedia of Educational Research, 3rd. ed., New York, Macmillan, pp. 848-861, 1970.

Withall, J.,"The Development of a Technique for the Measurement of Social-Emotional Climate in the classroom," Journal of Experimental Education, No. 17, March 1949, pp. 347-361.

APPENDIX A

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APPENDIX B

Instruments

TPOR

Time _____ NR _____ R Coeff. _____
R _____

Teacher Code # _____ Grade _____ City _____
Observer Code # _____ School _____
Date _____

TOT	I	II	III	TEACHER PRACTICES
				A. NATURE OF THE SITUATION
				1. T occupies center of attention.
				2. T makes p center of attention.
				3. T makes some thing as a thing center of p's attention.
				4. T makes doing something center of p's attention.
				5. T has p spend time waiting, watching, listening.
				6. T has p participate actively.
				7. T remains aloof or detached from p's activities.
				8. T joins or participates in p's activities.
				9. T discourages or prevents p from expressing self freely.
				10. T encourages p to express self freely.
				B. NATURE OF THE PROBLEM
				11. T organizes learning around Q posed by T.
				12. T organizes learning around p's own problem or Q.
				13. T prevents situation which causes p doubt or perplexity.
				14. T involves p in uncertain or incomplete situation.
				15. T steers p away from "hard" Q or problem.
				16. T leads p to Q or problem which "stumps" him.
				17. T emphasizes idealized, reassuring, or "pretty" aspects of topic.
				18. T emphasizes realistic, disconcerting, or "ugly" aspects of topic.
				19. T asks Q that p can answer only if he studied the lesson.
				20. T asks Q that is not readily answerable by study of lesson.
				C. DEVELOPMENT OF IDEAS
				21. T accepts only one answer as being correct.
				22. T permits p to suggest additional or alternative answers.
				23. T expects p to come up with answer T has in mind.
				24. T asks p to judge comparative value of answers or suggestions.
				25. T expects p to "know" rather than to guess answer to Q.
				26. T encourages p to guess or hypothesize about the unknown or untested.
				27. T accepts only answers or suggestions closely related to topic.
				28. T entertains even "wild" or far-fetched suggestion of p.
				29. T lets p "get by" with opinionated or stereotyped answer.
				30. T asks p to support answer or opinion with evidence.

TOT	I	II	III	
				D. USE OF SUBJECT MATTER
				31. T collects and analyzes subject matter for p.
				32. T has p make his own collection and analysis of subject matter.
				33. T provides p with detailed facts and information.
				34. T has p find detailed facts and information on his own.
				35. T relies heavily on textbook as source of information.
				36. T makes a wide range of information material available.
				37. T accepts and uses inaccurate information.
				38. T helps p discover and correct factual errors and inaccuracies.
				39. T permits formation of misconceptions and over-generalizations.
				40. T questions misconceptions, faulty logic, unwarranted conclusions.
				E. EVALUATION
				41. T passes judgment on p's behavior or work.
				42. T withholds judgment on p's behavior or work.
				43. T stops p from going ahead with plan which T knows will fail.
				44. T encourages p to put his ideas to a test.
				45. T immediately reinforces p's answer as "right" or "wrong."
				46. T has p decide when Q has been answered satisfactorily.
				47. T asks another p to give answer if one p fails to answer quickly.
				48. T asks p to evaluate his own work.
				49. T provides answer to p who seems confused or puzzled.
				50. T gives p time to sit and think, mull things over.
				F. DIFFERENTIATION
				51. T has all p working at same task at same time.
				52. T has different p working at different tasks.
				53. T holds all p responsible for certain material to be learned.
				54. T has p work independently on what concerns p.
				55. T evaluates work of all p by a set standard.
				56. T evaluates work of different p by different standards.
				G. MOTIVATION, CONTROL
				57. T motivates p with privileges, prizes, grades.
				58. T motivates p with intrinsic value of ideas or activity.
				59. T approaches subject matter in direct, business-like way.
				60. T approaches subject matter in indirect, informal way.
				61. T imposes external disciplinary control on p.
				62. T encourages self-discipline on part of p.

Teacher Code # _____ Grade _____ City _____ NR _____

Observer Code # _____ School _____ Rec. Time _____ R _____

Date _____ RCS RECORD _____ R Coeff. ____

_____

| | | |

PERCEPTUAL DIMENSIONS SCALE

Teacher Code # _____ Grade ___ City _____

Observer Code # _____ School _____ Time _____

Date _____

1. INTERNAL OR EXTERNAL FRAME OF REFERENCE

The subject is sensitive (insensitive) to and concerned (unconcerned) with how things seem to others with whom he interacts and uses this as a basis for his own behavior.

Internal External

1 2 3 4 5 6 7

2. PERCEPTIONS OF OTHERS AS ABLE OR UNABLE

The subject sees others as having (not having) the capacities necessary to deal with their problems successfully. He perceives others as basically able (unable) to make their own decisions and deal with their own crises effectively.

Able Unable

1 2 3 4 5 6 7

3. PERCEPTIONS OF SELF AS ADEQUATE OR INADEQUATE

The subject sees himself in essentially positive (negative) ways. He sees himself as generally liked (unliked), wanted (unwanted), successful (unsuccessful) and able (unable).

Adequate Inadequate

1 2 3 4 5 6 7

4. PERCEPTIONS OF SELF AS REVEALING OR CONCEALING

The subject is willing (unwilling) to disclose self. He can (cannot) treat feelings and shortcomings as important rather than hiding them. He seems willing (unwilling) to be himself.

Revealing Concealing

1 2 3 4 5 6 7

5. PERCEPTIONS OF PURPOSE AS FREEING OR CONTROLLING

The subject perceives the purpose of the helping relationship as essentially one of releasing (inhibiting) and assisting (directing). He believes that people should be free to explore and discover their own best ways (should be coerced and inhibited or rewarded in order to shape appropriate behavior.

Freeing Controlling

1 2 3 4 5 6 7

6. PERCEPTIONS OF GOALS AS LARGER OR SMALLER

The subject is primarily concerned with larger (smaller) issues. He sees events in a broad (narrow) perspective. He is not (is) exclusively concerned with details and specifics.

Larger Goals Smaller Goals

1 2 3 4 5 6 7

BEST COPY AVAILABLE

AN INSTRUCTIONAL MANUAL

FOR THE

RECIPROCAL CATEGORY SYSTEM*

*Based on a paper read at the Annual meeting of the American Educational Research Association, Chicago, Illinois, February 8-10, 1968 (Session 4.4): "The Development of a Reciprocal Category System for Assessing Teacher-Student Classroom Verbal Interaction" by Richard L. Ober, University of Florida; Samuel E. Wood, University of Florida; Arthur Roberts, New York Public Schools.

CREATION OF THE RECIPROCAL CATEGORY SYSTEM

The purpose of this discussion is to present the rationale, construct, and mechanics of a modification of the Flanders System of interaction analysis. The modification under discussion -- the Reciprocal Category System (RCS) -- was conceived and developed in an attempt to correct what is considered to be alimitation of Flanders' original instrument: With seven categories assigned to teachers talk, but only two assigned to the student, the original ten category system fails to devote adequate consideration to the general dimension of student verbal behavior as it relates to the classroom situation. Consequently, as a research tool, it is limited in its power to assess the broad spectrum of student talk and, as a teaching tool, it is limited in the number and variety of student talk patterns that can be conceived and produced under actual classroom situations. Putting it another way, since the system provides only two student categories there is a possibility that teachers, who are trained in the use of interaction analysis, may either consciously or unconsciously provide classroom situations which limit students to the use of these two verbal behaviors only.

The RCS consists of nine verbal categories, each of which can be assigned to either teacher or student talk, and a single category reserved for silence or confusion (refer to Fig. 1 for category descriptions). When verbal behavior is observed as teacher talk its category number is recorded as a single digit number (Categories 1 through 9, along the left hand margin of Fig. 1). In contrast, when verbal behavior is observed as student talk, its category number is recorded as a two digit number (Categories 11

Category Number Assigned to Party 1[1]	Description of Verbal Behavior	Category Number Assigned to Par

1 "WARMS" (INFORMALIZES) THE CLIMATE: Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included).

2 ACCEPTS: Accepts the action, behavior, comments, ideas, and/or contributions of another; positive reinforcement of these.

3 AMPLIFIES THE CONTRIBUTIONS OF ANOTHER: Asks for clarification of, builds on, and/or develops the action, behavior, comments, ideas and/or contributions of another.

4 ELICITS: Asks a question or requests information about the content, subject, or procedure being considered with the intent that another should answer (respond).

5 RESPONDS: Gives direct answer or response to questions or requests for information that are initiated by another; includes answers to ones own questions.

6 INITIATES: Presents facts, information, and/or opinion concerning the content, subject, or procedures being considered that are self-initiated; expresses ones own ideas; lectures (includes rhetorical questions - not intended to be answered).

7 DIRECTS: Gives directions, instructions, order, and/or assignments to which another is expected to comply.

8 CORRECTS: Tells another that his answer or behavior is inappropriate or incorrect.

9 "COOLS" (FORMALIZES) THE CLIMATE: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling out someone, exercising authority in order to gain or maintain control of the situation, rejecting or criticizing the opinion or judgement of another).

10 SILENCE OR CONFUSION: Pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.

---

[1]Category numbers assigned to Teacher Talk when used in classroom situation.
[2]Category numbers assigned to Student Talk when used in classroom situation.

Fig. 3 - Summary of Categories for the Reciprocal Category System.

through 19, along the right hand margin of Fig. 1). With the introduction of the reciprocity factor -- allowing each of nine categories to be assigned to either teacher or student talk -- the system is actually expanded to an operational total of 19 categories (two times the nine common categories plus Category 10 for silence or confusion).

DESCRIPTION OF THE RCS

In constructing the RCS, the broad and more comprehensive dimension of classroom verbal behavior was separated and considered in terms of four different subdimensions. In the following diagram these subdimensions are represented on four continua, each reflecting dualistic qualities:

Category Numbers*	Subdimension	Category Numbers*
1 and 11	Warm-Cool	9 and 19
2 and 12	Accept-Correct	8 and 18
3 and 13	Amplify-Direct	7 and 17
4 and 14	Elicit-Initiate	6 and 16

*Refer to Fig. 1.

NOTE: Collectively, Categories 4, 5, 6, and Categories 14, 15, 16 constitute a "transactional" group of behaviors that deals with the content or subject matter aspects of the verbal interaction. Categories 5 and 15 -- responding -- by definition do not entirely fit in either the elicit or the initiate category. Therefore, Categories 5 and 15 were not placed on the elicit-initiate continuum above, but, because of their relationship, are discussed in greater detail along with the transactional group later on.

THE WARM-COOL SUBDIMENSION

The warm categories -- one and eleven -- and the cool categories -- nine and nineteen -- deal with the socioemotional aspects of the classroom.

By formal definition, use of the warm-cool categories tends to have an effect on the feelings and emotions of another person as in contrast, for instance, to the accept-correct categories (two, twelve, eight, and eighteen) which are directed more toward another person's behavior.

Categories 1 and 11: Warming the Climate

> "WARMS (INFORMALIZES) THE CLIMATE: Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included).

Teacher or student use of the "warming" category tends to alleviate threat and/or release tension. When classifying warming verbal behavior, the grammatical construct and syntax are not the only considerations to be made. Implicit are the qualities of sincerity and geniuneness on the part of the initiator in addition to a degree of appropriateness as it applies to a given situation. For example, following a voluntary student contribution the teacher might reply, "That's very good, Tom!" Considering only the grammatical structure of the reply, it may or may not be correctly recorded as Category 1. If, in fact, Tom's contribution was in order and appropriate to the situation and if it is clear to the observer that the teacher's reply was made with sincerity of purpose, the observer would correctly record the observation as Category 1. In contrast, however, if Tom's contribution was inappropriate to the situation and, as a result, the teacher's comment smacked of ridicule or sarcasm, the observer would correctly record it as Category 9 — having a "cooling" effect.

Categories 9 and 19: Cooling the Climate

> "COOLS" (FORMALIZES) THE CLIMATE: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling out someone, exercising authority in order to gain or maintain control of the situation, rejecting or criticizing the opinion or judgment of another).

Use of the cooling category tends to produce threat and/or create tension. Verbal behaviors of this sort are usually used for the purposes of regimentation, sarcasm, ridicule, or the alienation of another person from the group. Again, as in classifying the warming category, the qualities of personal sincerity on the part of the initiator and appropriateness to the situation need to be considered along with grammatical construct.

It should be obvious from the above discussion that assignment of the warm-cool categories should be reserved for situations that obviously involve the feelings and/or emotions of another person -- either positively or negatively. In practice, it turns out that some teachers are characteristically neither warm nor cool -- they are seldom, if ever, observed to use one's or nine's. By the same token, other teachers are typically observed to be predominantly either warm or cool or interchangeably warm and cool. Likewise, students may commonly be observed to produce characteristic patterns of verbal behaviors with respect to the warm-cool categories.

THE ACCEPT CORRECT SUBDIMENSION

Use of the accept-correct categories is directed toward the behavior (ideas, comments, opinions, contributions, acts, etc.) of another person. Although they may affect another person's feelings or emotions indirectly, they do not affect them as acutely as the warm-cool categories discussed above.

Categories 2 and 12: Accepting

> ACCEPTS: Accepts the action, behavior, comments, ideas, and/or contributions of another; positive reinforcement of these.

The acceptant category reflects a spirit of agreement and is assigned to teacher or student talk that is given to support or reinforce the behavior of another person. In order to qualify as acceptant behavior, there needs to be a reasonable degree of awareness and sincerity on the part of the initiator. For example, if a teacher is repeatedly observed to emit a monotonous "OK" that has little or no significance to the students, the observer would not record it as Category 2. Rather, he would completely disregard the "OK." Quite often, teacher responses of this sort are nothing more than verbal tics, and as such, fail to qualify as positive reinforcers. In short, the use of the acceptant category should be limited to situations in which it is obvious that the verbal behavior was intended to be a positive reinforcer and, in turn, was perceived by the students as such.

Categories 8 and 18: Correction

CORRECTS: Tells another that his answer or behavior is inappropriate or incorrect.

Correction categories are assigned to verbal behavior that is used for the purpose of voicing disagreement or giving corrective feedback. The verbal behavior must be directed toward the behavior of another rather than the person himself. Verbal behavior of this sort might include such comments as "No," "I disagree," "That's not correct," and "The right answer is ....."

GROUND RULE: Usually, when recording acceptance-correction behavior, only a single category number is recorded. Example: "No, that's not right. The correct answer is . . ." The first comment "No, that's not right," is recorded as Category 8. The second part, "The correct answer is . . ." represents additional information and, as such, should be recorded as Category 6. The same holds true for the use of acceptance. The part of the verbal behavior which represents positive reinforcement should be recorded as Category 2 or 12; the remainder, which explains why it is acceptable, constitutes additional information and should be recorded as Category 6 or 16. This concept of following statements of acceptance or correction with a qualifying explanation is sometimes referred to as "public criteria" since it discloses publicly why a given behavior is acceptable or unacceptable.

GROUND RULE: A distinction should be made between Category 2 and positive reinforcement and positive reinforcement which is recorded as Category 1 -- praise or "warming" the climate. For example: The teacher's comment, "Right, that's very good, Jim!" would be recorded as Category 2 followed by Category 1: The "Right" is a positive reinforcer, but the ". . . that's very good, Jim!" if emphatic and sincere, tends to praise or "go beyond the call of duty" and, as such, would be correctly recorded as Category 1.

THE AMPLIFY-DIRECT SUBDIMENSION

It sould be made clear that amplification and direction are not suited to absolute dualistic positions on a continuum. In the truest sense of the word they are not as contrasting, perhaps, as warm-cool, accept-correct, and elicit-initiate. However, there are some qualities of the two categories which are contrasting. For example, to amplify a student's contribution by asking him to extend or clarify a contribution is certainly different from directing him to do something which is not his idea to begin with. Consequently, because they serve vital functions in the RCS -- both rationale-wise and operationally -- amplification and direction have been included and are treated as dualistic qualities in this presentation.

Categories 3 and 13: Amplification

> AMPLIFIES THE CONTRIBUTIONS OF ANOTHER: Asks for clarification of, builds on, and/or develops the actions, behavior, comments, ideas, and/or contributions of another.

As the term is used here, the primary purpose of amplification is to "play up" the contributions of another person. This can be accomplished by (1) building on, extending, and/or expanding a contribution which was initiated by another or (2) requesting another person to clarify or build on his own contribution. In both instances, special recognition and emphasis are directed toward the contribution of another person and, as a result, he perceives his contribution as being significant and important.

GROUND RULE: Only the request for clarification is recorded as a three or a thirteen. The clarification per se is not recorded as Category 3 or 13. Instead, it is recorded as another category -- probably responding (Categories 5 and 15) or initiating (Categories 6 and 16) in most instances. Example: The teacher's question, "What do you mean by that?" would be recorded as Category 3 since he is requesting the student to clarify his last statement. The statement of the response given by the student would not be recorded as Category 13, but rather Category 15 or 16 depending on the nature of his original contribution.

Categories 7 and 17: Direction

DIRECTS: Gives directions, instructions, order, and/or assignments to which another is expected to comply.

In this context the direction category describes verbal behavior which is for the purpose of giving another person(s) some type of an assignment, regardless of the time element. For instance, a lesson assignment for the next day, a teacher's request to turn on the lights immediately, and a direction to mix two chemicals together in a beaker would all three be recorded as Category 7. Each describes a specific task to be completed and in each it was implicit that the student should comply. In short, Category 7 is characterized by two qualities: First, an assignment of one sort or another is given to another person and, second, it is implicit that the person comply.

GROUND RULE: In the event the direction is either harshly delivered or given for the purpose of regimentation or discipline, it would not be recorded as Category 7, but rather Category 9 -- "Cooling the climate." Example: The teacher's commands "Sit down immediately!" and "Wipe that smile off your face!" would both be recorded as Category 9

rather than Category 7, since both tend to have a sharp effect on the feelings and emotions of the student(s).

THE TRANSACTIONAL SUBDIMENSION

The transactional concept is predicated on the assumption that information (ideas, opinions, content, subject matter, and the like) is a classroom commodity which can be exchanged on a give-and-take basis. In this context, any participant in a given teaching-learning situation -- teacher or student alike -- can elicit (Categories 4 and 14) or initiate (Categories 6 and 16) information. Should information be requested, it is customary for another person to respond accordingly. (Categories 5 and 15).

Categories 4 and-14: Eliciting

ELICITS: Asks a question or requests information about the content, subject, or procedure being considered with the intent that another should answer (respond).

Normally an eliciting verbal behavior takes the grammatical form of a question: "How many feet are in a mile?" "Who discovered the Pacific Ocean?" However, this is not necessarily the rule. For example, it is possible for the teacher to elicit information by means of a direct statement: "Tell us the number of members in the House of Representatives." By the same token, a student might comment, "I don't remember how to find the circumference of a circle." Both of these statements are examples of verbal behavior which is for the purpose of eliciting or securing information and therefore, are correctly recorded as Category 4 and 14 respectively.

Categories 6 and 16: Initiating

> INITIATES: Presents facts, information, and/or opinion concerning the content, subject, or procedures being considered that are self-initiated; expresses ones own ideas; lectures (includes rhetorical questions -- not intended to be answered).

In most cases teacher initiation will be observed in the forms of lecture, relating relevant background, expressing personal opinions, and offering ideas or procedural information. Student initiation is usually observed in the form of voluntary contributions including personal opinions, new ideas, and relevant information which extends or expands the scope of the subject under consideration. Initiatory verbal behaviors reflect to some degree a quality of individual choice in that the contribution is voluntary and at the discretion of the initiator himself. Should the contribution be offered at the request of another person, it is correctly recorded as 5 or 15 -- responding.

Categories 5 and 15: Responding

> RESPONDS: Gives direct answer or response to questions or requests for information that are initiated by another; includes answer to ones own question.

Verbal responses at the request of another are recorded as Category 5 or 15. Consider the teacher's question, "At what temperature Centigrade does water boil?" The correct student response, "One-hundred degrees" is recorded as Category 15. By the same token the student inquiry, "When does Christmas vacation begin?" is recorded as a 14, while the teacher's reply, "Friday, December 16" is recorded as a five.

GROUND RULE: To determine whether student talk following a teacher question (Category 4) is Category 15 or Category 16, the following conditions should be considered and met:

Category 15 follows Category 4 when the teacher's question:

A. Requires either a "yes" or "no" response. The rationale here is that yes-or-no propositions limit the student's latitude to answer since he has only two alternatives from which to choose -- yes or no.

B. Is of the simple recall or memory type. "Who discovered America?" "Tell us how far it is from the earth to the sun" "What is the formula for sulfuric acid?" Each of these calls for a memorized answer and is therefore properly recorded as a 15.

C. Is of the convergent type, that is, it has only one correct answer. To answer a convergent question normally requires the mental manipulation of two or more items of information. For example: "What is the area of a circle with a diameter of eight inches?" and "how much do seven gallons of water weigh at 60 degrees F?" both represent convergent questions. Answers to questions of this sort are usually not memorized.

Category 16 follows Category 4 when the teacher's question:

A. Solicits the student's opinion about or insights into a completely new problem, topic, or discussion.

B. Is of the divergent type, that is, it has more than one acceptable answer. Examples of the divergent question are: "How many uses can you think of for a hair pin?" "What are some ways in which we can preserve lumber?" "How might peace be achieved in Viet Nam?"

C. Requires the student to make an evaluation. "Should the United States remain in or get out of Viet Nam?" "Which is more suitable, a monetary system based on silver or gold as the standard?" and "Should we abolish the death penalty?" are each evaluative type questions.

GROUND RULE: When the teacher asks for a show of hands (as opposed to a verbal "yes" or "no") and the students comply, the student response is recorded as Category 15 even though there is no observable verbal behavior. The reasoning behind this is that to include the Category 15 completes a logical sequence for the purpose of plotting the matrix. Example: "How many understand?" (pause) "OK" would be recorded 5-15-2

GROUND RULE: When recording data using the RCS a 10 is inserted between student observations to indicate that different students had talked, one immediately following the other. For example: Teacher: "What are the colors of the spectrum?" (The following students name the colors in rapid succession without waiting to be called on, and without the need to have their answers acknowledged as correct by the teacher.)

Student A: Red
Student B: Orange
Student C: Yellow
Etc.

Using the RCS, the above interchange would be correctly recorded as: 4, 15, 10, 15, 10, 15, even though it transpired in less than three seconds.

MECHANICS FOR COLLECTING AND TREATING DATA

The mechanics of interaction analysis are simple and not particularly difficult to master. The observer situates himself in the classroom where he can clearly hear the teacher and students as they interact verbally. At the end of each three-second interval, he decides which of the ten categories best describes the verbal activity that has just transpired. He records the number of this category on a tally sheet, usually arranged in vertical columns of 20 tallies each (each column is equivalent to approximately one minute

of classroom interaction). With the recording of the preceding three-second interval, the observer simultaneously assesses the present three-second interval. He continues the assess-and-record sequence over and over at a regular three-second tempo. The completed series of category numbers is called "raw data" and represents a sequential record of the verbal interaction that has taken place during the period of observation -- normally about 20 minutes.

In order to tabulate the frequency with which one category follows another, raw data are plotted in a matrix. Prior to plotting, they are bracketed off by pairs:

$$\overset{10}{\underset{6}{(}}\ \text{1st pair}$$

$$\text{2nd pr.}\ \overset{6}{\underset{6}{(}}\ \text{3rd pair}$$

$$\text{4th pr.}\ \overset{6}{\underset{4}{(}}\ \text{5th pair}$$

$$\text{6th pr.}\ \overset{15}{\underset{2}{(}}\ \text{7th pair}$$

$$\text{8th pr.}\ \overset{2}{\underset{6}{(}}\ \text{9th pair}$$

$$\text{10th pr.}\ \overset{6}{\underset{15}{(}}$$

$$\overset{2}{\underset{10}{(}}$$

Each bracketed pair corresponds to a particular cell of the matrix. For example, the first pair above (10, 6) represents the 10-6 cell (tenth row down from the top and sixth column over from the left). The second pair represents the 6-6 cell (sixth row down and sixth column over) and so on. For each bracketed pair, a tally mark is placed in its corresponding cell of the matrix. The total number of tally marks in a given cell represents its "loading." Fig. 2 shows a nineteen by nineteen matrix with the cell loadings for the above raw data.

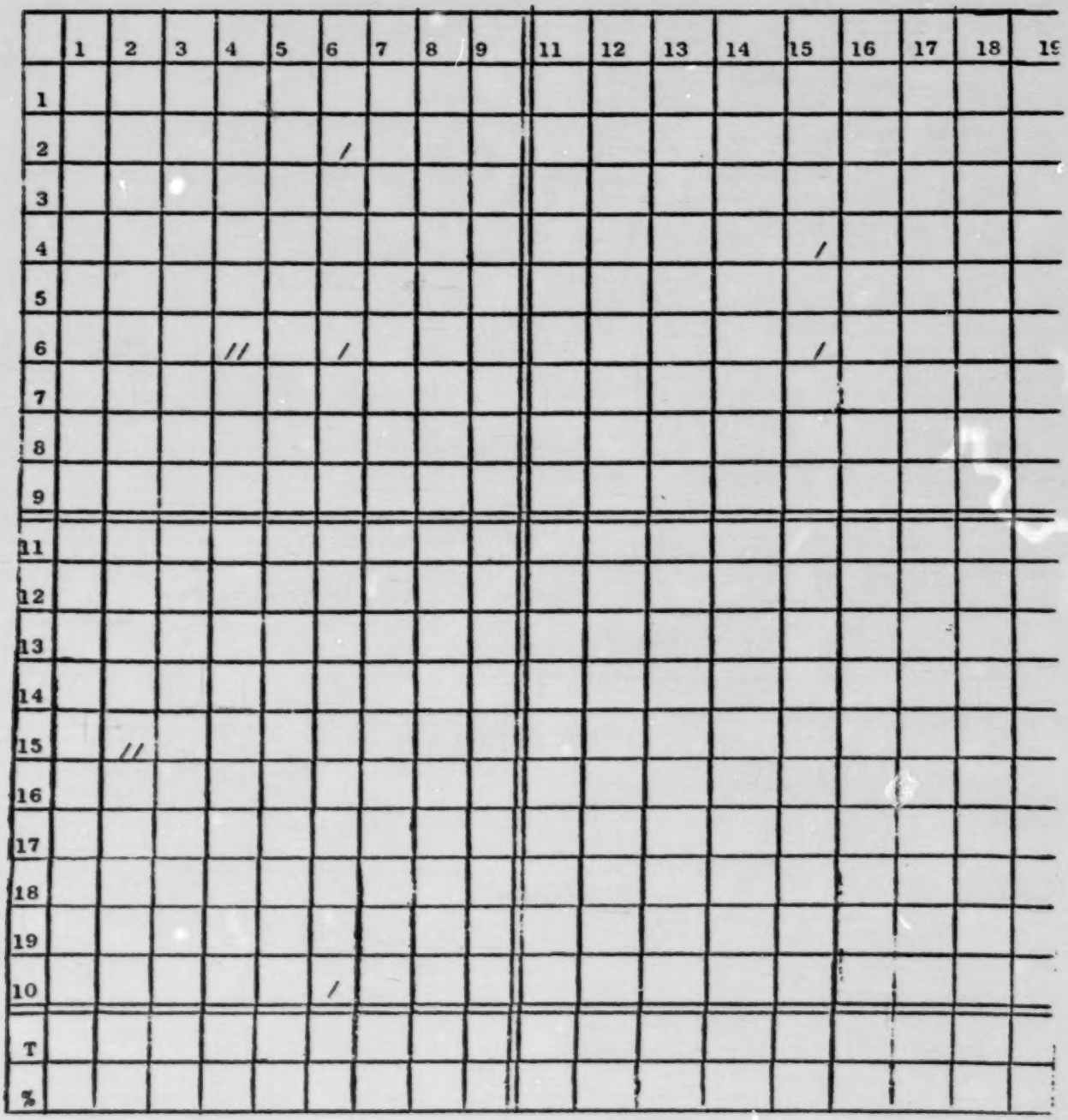

Fig. 2 - Nineteen-by-Nineteen Matrix with Plotted Data.

MEASURES YIELDED BY THE RCS

The RCS is designed to produce the following descriptive measures:

1. Percentage totals for each of the 19 categories (re: bottom row, Fig. 2).
2. A variety of comparative category ratios (discussed below).
3. A matrix containing 361 cells (re: Fig. 2).
4. Four submatrices (re: Fig. 3; discussed below).

COMPARATIVE CATEGORY RATIOS:

The RCS was purposely designed to delete any form of a comprehensive I/D ratio for comparing indirect and direct teacher verbal behavior. Rather, there are substituted several other ratios which compare individual and groups of individual categories. Following are several examples of the various ratios that are available using the RCS:

A. The "warm-cool" or 1/9 Ratio: This ratio compares the total amount of "warm" teacher talk with the total amount of "cool" teacher talk. Calculated by dividing the total amount of Category 1 by the total amount of Category 9.

B. The "Accept-Correct" or 2/8 Ratio: This ratio compares the total amount of teacher talk used for the purpose of "accepting" with the total amount of teacher talk used for "correcting." Calculated by dividing the total amount of category 2 by the total amount of Category 8.

C. The "Elicit-Initiate" or 4/6 Ratio: This ratio compares the total amount of "eliciting" by the teacher with the

total amount of teacher "initiation." Calculated by dividing the total amount of Category 4 by the total amount of Category 6.

D. The "Student-Teacher" or S/T Ratio: This ratio compares the total amount of "Teacher" talk with the total amount of "Student" talk. Calculated by dividing the total amount of Categories 11-19 by the total amount of Categories 1-9.

Considering the four examples described, it becomes apparent that a variety of other ratios are possible, depending on the requirements of a particular research or teaching situation. Two or more categories can be compared to two or more other categories. For example, an "acceptance-rejection" ratio might be calculated by dividing the total amount of Categories 1, 2, and 3 by the total amount of Categories eight and nine.

By the same token, it is possible to contrive a variety of ratios involving student categories. For example: A student "warm-cool" ratio can be calculated by dividing the total amount of Category 11 by the total amount of Category 19; a student-teacher "initiation" ratio can be calculated by dividing the total amount of Category 6 by the total amount of Category 16, etc.

THE RCS MATRIX AND SUBMATRICES:

The RCS produces a master matrix containing 361 cells (re: Fig. 22). To interpret the RCS matrix, the same general rules and procedures are followed as in the Flanders system. Likewise, a variety

of special matrix areas can be delineated similar to those of the Flanders 10 x 10 matrix.

Perhaps one of the most unique characteristics of the RCS are the four submatrices contained within the 19 x 19 master matrix (Fig. 3). Within the single master matrix are situated four complete submatrices showing a variety of sequential verbal patterns including:

A. Teacher-Teacher Talk: Various sequences of one kind of teacher talk followed by another kind of teacher talk. Example: Teacher lecture (Category 6), followed by teacher direction (Category 7), followed by teacher question (Category 4), and so on.

B. Teacher-Student Talk: Various sequences of teacher talk followed by student talk. Example: Teacher question (Category 4), followed by student response (Category 15) or teacher lecture (Category 6), followed by a student question (Category 14).

C. Student-Teacher Talk: Various sequences of student talk followed by teacher talk. This submatrix shows the kinds of teacher talk that follows student talk. Example: Student volunteers a contribution (Category 16) followed by teacher acceptance (Category 2) or student response to a teacher question (Category 15) followed by teacher correction (Category 8).

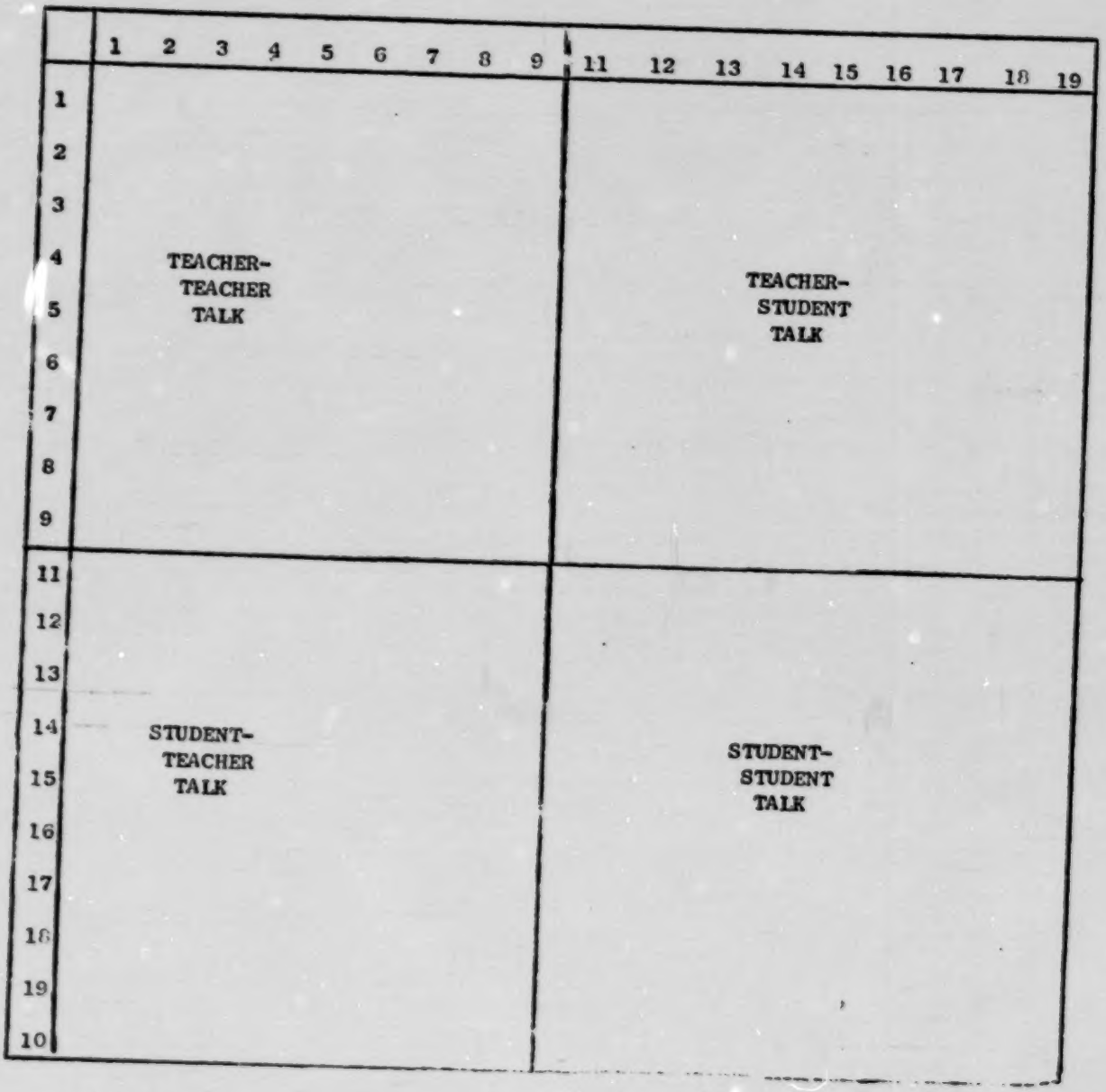
1 2 3 4 5 6 7 8 9
11 12 13 14 15 16 17 18 19
1 2 3 4 5 6 7 8 9
11 12 13 14 15 16 17 18 19
TEACHER-TEACHER TALK
TEACHER-STUDENT TALK
STUDENT-TEACHER TALK
STUDENT-STUDENT TALK

Fig. 3. -- Diagram of Nineteen-by-Nineteen Master Matrix Showing Four Submatrices and Types of Verbal Behavior in Each.

D. Student-Student Talk: Various sequences of one kind of student talk followed by another kind of student talk. This is probably the most intriguing of the four submatrices. Using this submatrix, it is possible to represent logically a student discussion being carried on in the absence of any teacher verbal participation. Example: Student question (Category 14), followed by student response (Category 15), followed by student correction (Category 18), followed by student initiation (Category 16), and so on.

INTRA - AND INTEROBSERVER RELIABILITY

At present, intra- and interobserver reliabilities* are calculated by means of Scott's method which is used in the Flanders system:

$$\text{Reliability} = \frac{P_o - P_e}{100 - P_e} \quad \text{where}$$

P_o = Total disagreement between observers subtracted from 100 and

$$P_e = \sum_{i=1}^{k} P_i^2$$

* For a complete explanation of reliability computation refer to Flanders, N.A. Teacher Influence, Pupil Attitudes and Achievement, U.S. Dept. of Health, Education and Welfare, Office of Education, Cooperative Research Monograph No. 12, Washington, D.C., Government Printing Office, 1965; 25-7.

BIBLIOGRAPHY

1. Amidon, E. and Flanders, N. The Role of the Teacher in the Classroom. Minneapolis; Paul Amidon and Associates, 1963.

2. Amidon, E. and Hough, J. Interaction Analysis: Theory, Research, and Application. Reading, Mass.: Addison-Wesley Publishing Co., 1967.

3. Brown, B. The Teacher Practices Observational Record. The University of Florida, Gainesville, 1966. (Copies available from author.)

4. Brown, B., Ober, R., and Soar, R. The Florida Taxonomy of Cognitive Behavior. The University of Florida, Gainesville, 1967. (Mimeo available from authors.)

5. Flanders, N. "Using Interaction Analysis in the Inservice Training of Teachers." Journal of Teacher Education, Vol. 14, No. 3, September, 1963; 251-60.

6. Flanders, N. Teacher Influence, Pupil Attitudes, and Achievement. U.S. Department of Health, Education, and Welfare, Office of Education, Cooperative Research Monograph No. 12, Washington, D. C., Government Printing Office, 1965; 126 pp.

7. Hough, J. and Amidon, E. "The Relationship of Personality Structure and Training in Interaction Analysis to Attitude Change During Student Teaching." (Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois, February, 1965.)

8. Hough, J. and Ober, R. "The Effect of Training in Interaction Analysis on the Verbal Teaching Behavior of Preservice Teachers." (Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois, 1966.)

9. Lohman, E. "Differential Effects of Training on the Verbal Behavior of Student Teachers." (Paper read at the annual meeting of the American Educational Research Association, New York, N. Y., 1967.)

10. Ober, R. "Predicting the Verbal Behavior of Student Teachers from Data Collected During Student Teaching." (Paper read at the annual meeting of the American Educational Research Association, New York, N. Y., 1967.)

APPENDIX C

Letters to Principals and Teachers

The College of Education at the University of Florida is concerned with providing quality teachers for the public schools. To do this well we need to determine the effectiveness of our program. Accordingly, we have designed a special research study. This study requires follow-up visits to the classrooms of a select group of former students. The teacher(s) from your building listed below is (are) among those chosen for this survey.

We would appreciate your cooperation in the following ways:

1. Permission to send a team of two observers to visit the classroom(s) of the teacher(s) for approximately three hours. This will not require any special activity on the part of the teacher(s).

2. Completion of a one-page Principal's Rating Scale to assess how the teacher is seen by you.

These visits would take place in the latter part of April or early May. On the day of the visit the teacher(s) would be given a packet of questionaires for self-evaluation to be completed at her earliest convenience.

If you are willing to assist us in this important endeavor, please consult with the teacher(s) about this visit and return the enclosed post card as soon as possible. We will contact you prior to the time our observers will be in your area. Should you wish a copy of our final report, please let us know and we will happy to send you one. All information secured will be kept completely confidential by school or person, being reported only in standard statistical format.

Sincerely,

Wm. T. Hedges

William D. Hedges
Chairman, Department of
Elementary Education

please reply immediately

COLLEGE OF EDUCATION
UNIVERSITY OF FLORIDA
Gainesville, Florida 32601

April 18, 1972

Dear Participating Teacher:

We appreciate your willingness to participate in our Follow-Up Study. Within the next few weeks a team of two observers will visit your classroom for approximately three hours. These observers have been instructed to be as inconspicuous as possible, and we are confident their visit will not cause a disruption of your regular activities.

Please limit any comments you need to make to the observers to matters required for carrying out their task without disruption to your class. Under no circumstances should you indicate in any way the kind of college preparation program you took at the University of Florida and your opinion about the value of this program.

At the end of the visit the observers will hand you a packet containing several questionnaires. Would you please fill these out and send them to us at your earliest convenience.

If you know at this time that a certain day will be most inconvenient for you to have our observers, or if you are planning a field trip, please drop us a postcard indicating the day our observers should not visit.

We would like you to know that we have made every provision to assure the strictect confidence about the observation made in your classroom. You have been assigned a code number, and your name will not appear on any recording sheets. No information about you personally will be released to your school or to the College.

Thank you again for your cooperation.

Sincerely,

Hannelore Wass, Ph. D.
Assistant Professor

HW/jm

Corrections Sheet

Grant No. OEG-4-72-0016

"Follow-Up Study of On-The-Job Behavior of Elementary Teachers Trained in an Innovative and a Traditional Program of Teacher Preparation"

p. 11	Line 1	Omit the word "analysis."
p. 13	Table 1	Add an asterisk to the number 3.51 to read 3.51*
p. 13	Line 3	Change .9 to read .933
p. 17	Table 6	Last line - Add an asterisk to the number 4.10 to read 4.10* Add an asterisk to the footnote of the table, the significance notation which corresponds to 4.10*

ERRATA: Page 13, Table 1 should read:

	S^2
Exp. Group	1,492.95
Control Group	1,092.78

THE END